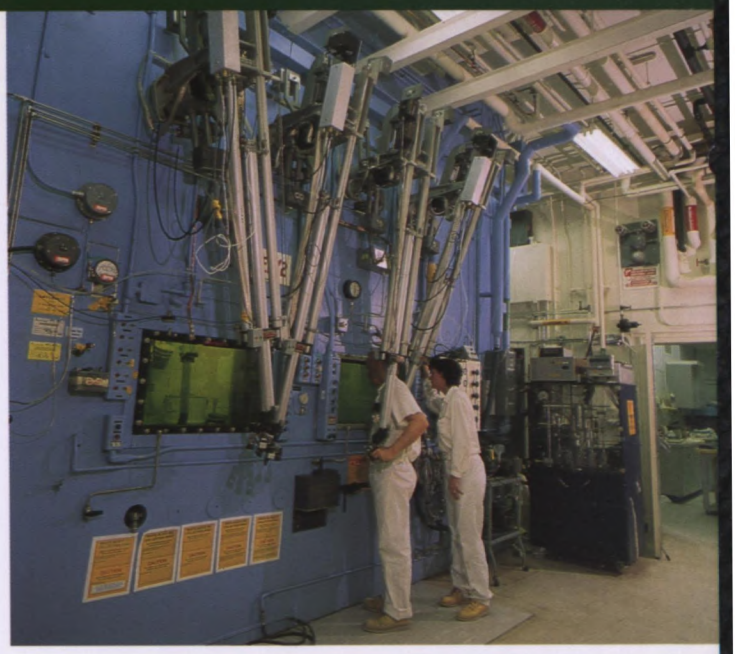
*Staff at AECL's hot cell facilities provide comprehensive remote-handling services for post-irradiation examination, analysis, testing, and processing of irradiated materials.*



## Post-Irradiation Examination (PIE) Facilities

To complement our surface analysis capabilities, AECL offers comprehensive remote-handling services and facilities for post-irradiation examination, analysis, testing, processing and repair of irradiated reactor fuel, reactor components, radioactive materials and equipment.

Specialists in inspection, testing, and the detailed examination of irradiated fuels and materials form the core of the shielded facility groups. They are supported by experts in fracture analysis, metallurgical and chemical engineering, analytical chemistry, materials science, and corrosion and wear.

The shielded facilities at Chalk River Laboratories provide a considerable degree of operational flexibility. They include:

- a reactor bay for the receipt and initial processing of materials
- hot cells with remote-handling equipment
- shielded casks for transfer of highly radioactive materials
- a shielded Scanning Electron Microscope, with direct sample transfer from hot cells

Individual hot cells are designed to handle up to 100 kCi of cobalt-60 (Co-60) or an equivalent (in terms of Bq-MeV) mixture of radioisotopes. Specialized hot cells are dedicated to mechanical testing and the examination of irradiated non-fissile materials. Cells are equipped with computer-controlled servo-hydraulic test frames for tensile, fatigue and other types of fracture testing at elevated temperatures and pressures. Others are equipped with cantilever beam fracture mechanics test rigs for delayed hydride crack initiation and velocity tests.

The major PIE services provided by AECL are:

- non-destructive visual and dimensional examinations
- machining of radioactive materials
- metallographic and ceramographic examinations
- fuel burnup and transuranic isotopic analysis
- SEM/EDX/WDX, DSC and FTIR analysis
- gamma spectroscopy
- mechanical testing
- determination of hydrogen/deuterium
- measurements of fission gas release